IMMUNOLOGY

AN OFFICIAL JOURNAL OF THE

BRITISH SOCIETY FOR IMMUNOLOGY

Editor

M. W. STEWARD

Editorial Board

G. L. ASHERSON, B. A. ASKONAS, J. M. AUSTYN, R. W. BALDWIN, E. B. BELL, P. C. L. BEVERLEY, R. M. BINNS, J. M. BLACKWELL, R. H. R. BOMFORD, M. K. BRENNER, R. E. CALLARD, S. J. CHALLACOMBE, A. COOKE, M. E. DEVEY, H. M. DOCKRELL, D. W. DRESSER, M. FELDMANN, A. FERGUSON, R. VAN FURTH, J. GORDON, C. D. GREGORY, K. GUY, J. G. HALL, T. HAMAOKA, C. HOWARD, N. HUGHES-JONES, I. V. HUTCHINSON, R. JEFFERIS, P. M. JOHNSON, A. P. JOHNSTONE, G. G. B. KLAUS, J. R. LAMB, R. G. Q. LESLIE, W. H. McBRIDE, A. McMICHAEL, R. N. MAINI, D. K. MALE, S. MARSHALL-CLARKE, H. R. P. MILLER, N. A. MITCHISON, M. MOORE, B. NOBLE, G. A. W. ROOK, C. J. SANDERSON, E. SIMPSON, C. J. F. SPRY, C. R. STOKES, G. A. T. TARGETT, M. J. TAUSSIG, Y. THANAVALA, J. L. TURK, M. W. TURNER, D. WAKELIN, K. WHALEY, P. C. WILKINSON, A. F. WILLIAMS, J. D. WILLIAMSON

VOLUME 66

Pages 1–642

BLACKWELL SCIENTIFIC PUBLICATIONS

OXFORD LONDON EDINBURGH BOSTON MELBOURNE

1989

Published for the British Society for Immunology by
Blackwell Scientific Publications
Osney Mead, Oxford OX2 0EL, U.K.
8 John Street, London WC1N 2ES, U.K.
23 Ainslie Place, Edinburgh EH3 6AJ, U.K.
3 Cambridge Center, Cambridge, MA 02142, U.S.A.
107 Barry Street, Carlton, Victoria 3053, Australia

Printed in Great Britain at the Alden Press, Oxford

© 1989 Blackwell Scientific Publications Ltd. Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by Blackwell Scientific Publications for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of $03.00 per copy is paid directly to CCC, 27 Congress Street, Salem, MA 01970, U.S.A. Special requests should be addressed to the Editor. 0019-2805/89/$03.00.

IMMUNOLOGY

CONTENTS

Vol. 66 No. 1 January 1989

Hypothesis paper

F. I. VERTOSICK & R. H. KELLY: Immune network theory: a role for parallel distributed processing? 1

P. J. H. JOHANSSON, F. A. NARDELLA, J. SJÖQUIST, A. K. SCHRÖDER & P. CHRISTENSEN: Herpes simplex type 1-induced Fc receptor binds to the Cγ2–Cγ3 interface region of IgG in the area that binds staphylococcal protein A 8

W. L. CHAN: Functional cross-reactivity between the glycoprotein B of herpes simplex type 1 and Epstein–Barr virus 14

A. E. E. AHMED, P. BIRD, I. C. MCKAY & K. WHALEY: The plasma protein which inhibits complement-mediated prevention of immune precipitation is an Fc binding protein 20

S. M. NORTH & J. L. GURIN: Regulation of serum antibodies induced in syngeneic rats after administration of monoclonal antibody MT10:21 26

R. MATSUMOTO, M. MATSUMOTO, S. MITA, Y. HITOSHI, M.ANDO, S. ARAKI, N. YAMAGUCHI, A. TOMINAGA & K. TAKATSU: Interleukin-5 induces maturation but not class switching of surface IgA-positive B cells into IgA-secreting cells 32

G. R. WALLACE, J. BRIFFA, I. MCCAFFERTY, P. W. ASKENASE & B. M. CHAIN: The T-cell response to haptenated insulins. I. The proliferative response 39

M. FLORY, G. R. WALLACE, K. OETTEL & B. M. CHAIN: The T-cell response to haptenated insulins. II. The antibody response 45

G. HEDLUND, M. DOHLSTEN, H. O. SJÖGREN & R. CARLSSON: Maximal interferon-gamma production and early synthesis of interleukin-2 by $CD4^+CDw29^-$ $CD45R^-p80^-$ human T lymphocytes 49

R. K. CHOPRA, D. C. POWERS, W. H. ADLER & J. E. NAGEL: Phorbol myristate acetate and calcium ionophore A23187-stimulated human T cells do not express high-affinity IL-2 receptors 54

H. KAWANISHI & J. KIELY: Impaired non-specific suppressor-inducer T-cell activity in aged murine Peyer's patches, which can be corrected largely by IL-2 *in vitro* 61

W. G. KIMPTON, E. A. WASHINGTON & R. N. P. CAHILL: Recirculation of lymphocyte subsets ($CD5^+$, $CD4^+$, $CD8^+$, SBU-$T19^+$ and B cells) through gut and peripheral lymph nodes 69

M. DENIS & K. CHADEE: Murine T-cell clones against *Entamoeba histolytica*: *in vivo* and *in vitro* characterization 76

J. H. COX, J. R. LAMB, V. BAL, G. W. BUTCHER, J. C. HOWARD, M. J. OWEN & J. IVANYI: The phenotypic and molecular characterization of Nb2 lymphoma cells activated with IL-2 and human growth hormone 83

C. J. SMART, R. V. HEATLEY & L. K. TREJDOSIEWICZ: Expression of CD6 and the UCHL1-defined CD45 (p180) antigen by human colonic T lymphocytes 90

S. E. MACATONIA & S. C. KNIGHT: Dendritic cells and T cells transfer sensitization for delayed-type hypersensitivity after skin painting with contact sensitizer 96

H. YEOMAN, J. G. ANDERTON & M. A. STANLEY: MHC class II antigen expression is not induced on murine epidermal keratinocytes by interferon-gamma alone or in combination with tumour necrosis factor-alpha 100

P. R. HUTCHINGS, N. M. PARISH & A. COOKE: Abnormalities in the SJL mouse provide evidence for different mechanisms for the induction and transfer of tolerance to mouse thyroglobulin 106

D. O. HASKARD, S. STROBEL, M. THORNHILL, C. PITZALIS & R. J. LEVINSKY: Mechanisms of lymphocyte adhesion to endothelial cells: studies using a LFA-1-deficient cell line 111

A. J. GRANT, R. E. MERCHANT & R. E. HALL: Interleukin-2 modulates the expression of lymphocyte function-associated antigen-one (LFA-1) and p150, 95 during the generation of lymphokine-activated killer (LAK) cells 117

M. E. BACA & A. MCI. MOWAT: Immunological studies of NK cell-deficient beige mice. I. Defective ability of beige lymphocytes to mediated local and systemic graft-versus-host reactions 125

M. E. BACA, A. MCI. MOWAT & D. M. V. PARROTT: Immunological studies of NK cell-deficient beige mice. II. Analysis of T-lymphocyte functions in beige mice 131

S. A. GRANDO, B. T. GLUKHENKY, G. N. DRANNIK, A. P. KOSTROMIN & A. B. ROMANENKO: The effect of experimental haemocarbofiltration upon activity of mononuclear cells from normal and autoimmune patients 138

T. W. JUNGI, E. PETERHANS, H. PFISTER & H. FEY: The interaction of ruminant IgG with receptor type II for IgG on human phagocytes 143

J. Y. M. WONG & J. P. OPDEBEECK: Protective efficacy of antigens solubilized from gut membranes of the cattle tick, *Boophilus microplus* 149

Nomenclature Committee, Working Group on Lymphokines 156

Book reviews 158

Books received for review 161

Vol. 66 No. 2 February 1989

H. C. BODMER, J. M. BASTIN, B. A. ASKONAS & A. R. M. TOWNSEND: Influenza-specific cytotoxic T-cell recognition is inhibited by peptides unrelated in both sequence and MHC restriction 163

G. Portillo, M. Turner, D. Chantry & M. Feldmann: Effect of cytokines on HLA-DR and IL-1 production by a monocytic tumour, THP-1 170
B. K. Mookerjee, P. B. Chen & J. L. Pauly: IL-2-induced polyclonal proliferation of human peripheral blood lymphocytes: functional and phenotypic characteristics of proliferating cells 176
K. Burkhardt, T. E. Mandel, T. Diamantstein & M. S. Loughnan: Anti-IL-2 receptor monoclonal antibody AMT-13 increases soluble IL-2 receptor levels *in vivo* 183
C. Skoglund, A. Scheynius, O. Söder & P. Larsson: Effects on rat T-helper cell proliferation by syngeneic epidermal cells exposed to IFN-γ *in vivo* 190
B. D. Gitter, J. M. Labus, S. L. Lees & M. E. Scheetz: Characteristics of human synovial fibroblast activation by IL-1β and TNFα 196
N. U.-D. Khan, K. A. F. Pulford, M. A. Farquharson, A. Howatson, C. Stewart, R. Jackson, A. M. McNicol & A. K. Foulis: The distribution of immunoreactive interferon-alpha in normal human tissues 201
G. Pryce, D. Male & J. Sedgwick: Antigen presentation in brain : brain endothelial cells are poor stimulators of T-cell proliferation 207
A. N. Akbar, A. Timms & G. Janossy: Cellular events during memory T-cell activation *in vitro*: the UCHL1 (180,000 MW) determinant is newly synthesized after mitosis 213
R. Aoi, I. Nakashima, Y. Kitamura, H. Asai & K. Nakano: Histamine synthesis by mouse T lymphocytes through induced histidine decarboxylase 219
J. G. Shields, R. J. Armitage, B. N. Jamieson, P. C. L. Beverley & R. E. Callard: Increased expression of surface IgM but not IgD or IgG on human B cells in response to IL-4 224
L. Flores-Romo, D. Foster, G. R. Guy & J. Gordon: Phorbol ester and calcium ionophore are sufficient to promote cell replication in cultures of quiescent human B lymphocytes 228
M. J. Caulfield, D. Stanko & C. Calkins: Characterization of the spontaneous autoimmune (anti-erythrocyte) response in NZB mice using a pathogenic monoclonal autoantibody and its anti-idiotype 233
L. T. Adler & E. Claassen: Cellular basis of an auto-anti-allotypic mechanism for the maintenance of chronic allotype suppression in the rabbit 238
C. G. Mitchell & T. Lehner: Proteolysis of the 185,000 MW streptococcal cell wall antigen generating 4000 and 6000 MW peptides with distinct antigenic determinants 246
J. A. Lopez Guerrero, J. M. Redondo, B. Alarcón, F. Sánchez-madrid, M. Rodríquez Moya, M. Ortíz de Landazuri, C. Bernabeu & M. Fresno: Different functional domains on the transferrin receptor molecule defined by monoclonal antibodies 252
H. Takamatsu & M. H. Jeggo: Cultivation of Bluetongue virus-specific ovine T cells and their cross-reactivity with different serotype viruses 258
H. Kitamura & M. Tsuboi: Inhibition of immune haemolysis by a serum factor found in C3-deficient subjects 264
J. Zwirner, E. Felber, P. Schmidt, G. Riethmüller & H. E. Feucht: Complement activation in human lymphoid germinal centres 270
N. A. Buchmeier & N. R. Cooper: Suppression of monocyte functions by human cytomegalovirus 278
R. L. Spooner, E. A. Innes, E. J. Glass & C. G. D. Brown: *Theileria annulata* and *T. parva* infect and transform different bovine mononuclear cells 284
H. A. Molina & F. Kierszenbaum: Interaction of human eosinophils or neutrophils with *Trypanosoma cruzi in vitro* causes bystander cardiac cell damage 289
J. J. Wirth, F. Kierszenbaum & A. Zlotnik: Effects of IL-4 on macrophage functions: increased uptake and killing of a protozoan parasite (*Trypanosoma cruzi*) 296
Y. Harari & G. A. Castro: Simulation of parasite-induced gut hypersensitivity: implications for vaccination 302
J. D. Reynolds & D. Kirk: Two types of sheep Peyer's patches: location along gut does not influence involution 308
K. J. Gogolin-Ewens, C. S. Lee, W. R. Mercer & M. R. Brandon: Site-directed differences in the immune response to the fetus 312

Brief communication

I. Newman & P. C. Wilkinson: Chemotactic activity of lymphotoxin and tumour necrosis factor alpha for human neutrophils 318

Vol. 66 No. 3 March 1989

Review paper

H. Nygren & M. Stenberg: Immunochemistry at interfaces 321

A. E. Kossakowska & S. J. Urbanski: Novel region within the Vκ gene promoter is responsible for tissue and stage-specific expression of immunoglobulin genes in human lymphoid neoplasms 328
S. Kawaguchi: Reactivity of mouse antibodies against bromelain-treated mouse erythrocytes with thrombin-treated platelets 335
R. Von Grünigen & C. H. Schneider: Antigenic structure of the hexacosapeptide melittin: evidence for three determinants, one with a helical conformation 339
Y.-H. Park & D. G. Osmond: Post-irradiation regeneration of early B-lymphocyte precursor cells in mouse bone marrow 343
P. Brams & M. H. Claesson: T-cell activation. I. Evidence for a functional linkage between class I MHC antigens and the T3–Ti complex 348
G. W. Giegerich, W. R. Hein, M. Miyasaka, G. Tiefenthaler & T. Hünig: Restricted expression of CD2 among subsets of sheep thymocytes and T lymphocytes 354
Y. Takeuchi, S. Habu, K. Okumura & G. Suzuiki: Cyclosporin A and anti-Ia antibody cause a maturation defect of $CD4^+8^-$ cells in organ-cultured fetal thymus 362
I. Knöller, J. Bujanowski-Weber, B. Brings & W. Konig: Influence of IL-2 and IL-4 on the IgE synthesis and the IgE-binding factor (sCD23) production by human lymphocytes *in vitro* 368

P. H. Hart, G. A. Whitty, D. S. Piccoli & J. A. Hamilton: Control by IFN-γ and PGE_2 of TNFα and IL-1 production by human monocytes 376
T. Herrmann, O. Josimovic-Alasevic, A. Mouzaki & T. Diamamtstein: Demonstration of two distinct forms of released low affinity-type rat IL-2 receptors 384
C. S. Lee, E. Meeusen & M. R. Brandon: Subpopulations of lymphocytes in the mammary gland of sheep 388
F. H. Sennhauser, R. A. MacDonald, D. M. Roberton & C. S. Hosking: Comparison of concentration and avidity of specific antibodies to *E. coli* in breast milk and serum 394
A. Mci. Mowat, I. B. McInnes & D. M. V. Parrott: Functional properties of intra-epithelial lymphocytes form mouse small intestine. IV. Investigation of the proliferative capacity of IEL using phorbol ester and calcium ionophore 398
P. J. Van der Heijden, A. T. J. Bianchi, B. A. Bokhout, M. Dol, J. W. Scholten & W. Stok: Quantification of antigen-specific antibody-secreting cells in the small intestine and other lymphoid organs of mice after oral booster immunization 404
R. A. Kay & A. Ferguson: The immunological consequences of feeding cholera toxin. I. Feeding cholera toxin suppresses the induction of systemic delayed-type hypersensitivity but not humoral immunity 410
R. A. Kay & A. Ferguson: The immunological consequences of feeding cholera toxin. II. Mechanisms responsible for the induction of oral tolerance for DTH 416
M. Fujita, M. Mishima, K. Iwabuchi, C. Katsume, T. Gotohda, K. Ogasawara, Y. Mizuno, R. A. Good & K. Onoe: A study on type II collagen-induced arthritis in allogeneic bone marrow chimaeras 422
J. S. Marshall & E. B. Bell: Induction of an auto-anti-IgE response in rats. III. Inhibition of a specific IgE response 428
B. Schick & K. F. Austien: Modulation of chymase-mediated rat serosal mast cell degranulation by trypsin or diisopropyl fluorophosphate 434
M. Tomioka, T. Goto, T. D. G. Lee, J. Bienenstock & A. D. Befus: Isolation and characterization of lung mast cells from rats with bleomycin-induced pulmonary fibrosis 439
M. Steffen, M. Abboud, G. K. Potter, Y. P. Yung & M. A. S. Moore: Presence of tumour necrosis factor or a related factor in human basophil/mast cells 445
M. A. Cassatella, G. Berton, C. Agostini, R. Zambello, L. Trentin, A. Cipriani & G. Semenzato: Generation of superoxide anion by alveolar macrophages in sarcoidosis: evidence for the activation of the oxygen metabolism in patients with high-intensity alveolitis 451
E. A. MacIntyre, D. W. Wallace, K. O'Flynn, R. Abdul-Gaffar, P. A. T. Tetteroo, G. Morgan & D. C. Linch: Binding of monoclonal antibody to CD16 causes calcium mobilization in large granular lymphocytes but inhibits NK killing 459
D. Su & N. Van Rooijen: The role of macrophages in the immunoadjuvant action of liposomes: effects of elimination of splenic macrophages on the immune response against intravenously injected liposome-associated albumin antigen 466

Brief communication
G. Gallagher, J. Findlay & F. A. L. Al-Azzawi: Human lymphokine-activated killer cells develop syngeneic killing ability 471

Book reviews 475

Announcement 477

Erratum 478

Vol. 66 No. 4 April 1989

S. Bitoh, S. Fujimoto & H. Yamamoto: Idiotypic and anti-idiotypic B–B interaction is controlled by major histocompatibility complex-restricted regulation 479
M. Ohlin, L. Danielsson, R. Carlsson & C. A. K. Borrebaeck: The effect of leucyl-leucine methyl ester on proliferation and Ig secretion of EBV-transformed human B lymphocytes 485
Z. Rozsnyay, G. Sármay, M. Walker, K. Mašlanka, Z. Valasek, R. Jefferis & J. Gergely: Distinctive role of IgG1 and IgG3 isotypes in FcγR-mediated functions 491
R. E. O'Hehir, V. Bal, D. Quint, R. Moqbel, A. B. Kay, E. D. Zanders & J. R. Lamb: An *in vitro* model of allergen-dependent IgE synthesis by human B lymphocytes: comparison of the response of an atopic and a non-atopic individual to *Dermatophagoides* spp. (house dust mite) 499
J. Bujanowski-Weber, B. Brings, I. Knöller, T. Pfeil & W. König: Expression of low-affinity receptor for IgE (FcεRII, CD23) and IgE-BF (soluble CD23) release by lymphoblastoid B-cell line RPMI-8866 and human peripheral lymphocytes of normal and atopic donors 505
Y. Yoshikai, Y. Takeda, S. Ohga, K. Kishihara, G. Matsuzaki & K. Nomoto: Rearrangements of T-cell antigen receptor γ and δ chain genes are detected in the long-term cultured bone marrow cells of athymic nude mice but not in those of euthymic mice 512
G. Janossy, M. Bofill, D. Rowe, J. Muir & P. C. L. Beverley: The tissue distribution of T lymphocytes expressing different CD45 polypeptides 517
M. H. Bocchieri: Immunoregulatory effects of cloned T cells on B-cell responses: comparison of autoimmune and non-autoimmune derived clones 526
T. Nitta, K. Nemoto, H. Yabuta, S. Okumura & M. Nakano: Antigen-dependent and -independent proliferative T-cell populations in the peritoneal exudate cells of immunized mice 532
C. F. Strnad, W.-Q. Lin & R. A. Carchman: Interactive effects of pertussis toxin and the phorbol ester tumour promotor, phorbol dibutyrate, on T-lymphocyte mitogenesis and the expression of phenotypic determinants 539
M. G. Bradbury & C. R. Parish: Receptors on lymphocytes for endogenous splenic glycosaminoglycans 546
E. J. Goetzl, K. T. Kodama, S. W. Turck, S. A. Schiogolev & S. P. Sreedharan: Unique pattern of cleavage of vasoactive intestinal peptide by human lymphocytes 554
R. Bujdoso, P. Young, G. D. Harkiss & I. McConnell: Antigen presentation in the sheep: generation of antigen-specific T-cell lines 559

C. G. Cook, G. J. Letchworth & G. A. Splitter: Bovine naturally cytolytic cell activation against bovine herpes virus type 1-infected cells does not require late viral glycoproteins 565

B. Jin, J. L. Scott, M. A. Vadas & G. F. Burns: TGFβ down-regulates TLiSA1 expression and inhibits the differentation of precursor lymphocytes into CTL and LAK cells 570

I. Kimber, C. J. Shepherd, J. A. Mitchell, J. L. Turk & D. Baker: Regulation of lymphocyte proliferation in contact sensitivity: homeostatic mechanisms and a possible explanation of antigenic competition 577

J. L. Viney, T. T. MacDonald & P. J. Kilshaw: T-cell receptor expression in intestinal intra-epithelial lymphocyte subpopulations of normal and atymic mice 583

M. Korenaga, C. H. Wang, R. G. Bell, D. Zhu & A. Ahmad: Intestinal immunity to *Trichinella spiralis* is a property of $OX8^-$ $OX22^-$ T-helper cells that are generated in the intestine 588

A. G. Lamont, A. Mci. Mowat & D. M. V. Parrott: Priming of systemic and local delayed-type hypersensitivity responses by feeding low doses of ovalbumin to mice 595

C. A. W. Bate, J. Taverne & J. H. L. Playfair: Soluble malarial antigens are toxic and induce the production of tumour necrosis factor *in vivo* 600

M. Swieter, W. A. Ghali, C. Rimmer & D. Befus: Interferon-α/β inhibits IgE-dependent histamine release from rat mast cells 606

L. L. Thomas, L. M. Zheutlin & G. J. Gleich: Pharmacological control of human basophil histamine release stimulated by eosinophil granule major basic protein 611

H. Gyllenhammar & J. Palmblad: Linoleic acid-deficient rat neutrophils show decreased bactericidal capacity, superoxide formation and membrane depolarization 616

Y. Matsumoto, K. Kawai & M. Fujiwara: *In situ* Ia expression on brain cells in the rat: autoimmune encephalomyelitis-resistant strain (BN) and susceptible strain (Lewis) compared 621

Brief communications

C. M. Walker & J. A. Levy: A diffusible lymphokine produced by $CD8^+$ T lymphocytes suppresses HIV replication 628

P. C. Doherty, J. E. Allan & W. Allan: *In vivo* treatment with an appropriate anti-Thy-1.2 monoclonal antibody abrogates hybrid resistance to $Thy\text{-}1.1^+$ virus-immune effector T cells 631

Book reviews 634

Author and subject indexes for Volume 66 635